

REMARKS

Previously pending in the application were claims 1-10, with claims 11-23 withdrawn. The withdrawn claims are now cancelled and new claims 24 – 43 are added.

The applicant has removed the portion of the claims referring to sequences 6, 7 and 8, which were not a part of the election following restriction.

Claims 2, 6 and 7 are rejected under section 101 as directed to nonstatutory subject matter, since the seed of claim 2 and the plant material of claims 6 and 7 may not necessarily contain the recombinant sequence due to segregation of genes during seed production. The applicant has amended the claims to recite that the plant seed, plant material, or seed tissue comprises the recombinant nucleotide sequence. Thus it is believed the rejection is moot with these amendments.

Claims 1-4 and 6-9 are rejected under section 102(b) as anticipated by Koprowski et al, '570, as teaching a plant and seed expressing a fish antigen which can be administered with an adjuvant. Applicant respectfully traverses the rejection, in that Koprowski does not show transformation of a plant with a nucleotide sequence encoding a fish antigen or immunogen, which results in its integration into the plant genome. Rather, Korpowski describes transformation of an endophytic microorganism, and then infecting a plant with the transformed microorganism. For example, see column 1, beginning at line 55 in which the applicant there states, "The present invention utilizes plants infected with genetically modified endophytic microorganisms as the vehicle for therapeutic or prophylactic compound synthesis and delivery. In some embodiments of the invention, the microorganism is propagated inside a plant, so that the plant becomes the delivery vehicle for the genetically modified microorganism and the compound." The endophytic microorganism is defined as "a species of bacterium or fungus that can live within a plant and colonize the tissue and organs of that plant." (Col. 3, lines 20-22). It is emphasized that this microorganism is what is transformed, which they define as "adding one or more genes that the microorganism does not naturally have." See col. 3, lines 26-29 and also col. 4, lines 5-9 and 35-40. They continue on to describe that the bioactive compound "will remain inside the microorganism" unless the plant material is disrupted (col. 5 lines 1-4) and that it is the microorganism, not the plant, that synthesizes the immunogenic protein (col. 4, lines 10-14).

In the present invention, however, it is the plant that is transformed, not a microorganism. As discussed throughout the specification, the plant is transformed with the end result that the sequence is integrated into the plant genome (for example, page 8, starting at line 6 and page 10, starting at line 21). The claims are amended to clarify this aspect of the invention, and claim 1 recites a plant comprising a recombinant nucleotide sequence integrated into the plant genome. Claims 2, 3 and 6 are likewise amended to recite this clearly, as do the newly presented claims. The plant here is both production vehicle and can also be delivery vehicle. Thus it is believed the rejection is rendered moot.


The newly presented claims are also believed to be in condition for allowance. The claims recite a plant (claims 24-26) or a plant cell (claims 28-30) where the plant is a monocotyledonous plant, a corn plant or a plant cell, as taught in the specification (see for example pages 10 starting at line 21). New claims also recite a plant (claim 27, 28) or method of protecting a fish (claim 34, 35, 38, 39, 42, 43) or a composition (claim 40, 41) in which the expression of the amino acid is at least about 0.01% or at least about 0.1% total soluble protein, as discussed in Example 3 (see especially page 24, lines 3 – 15). In new dependent claim 31, the amino acid is secreted to the cell wall as shown in Example 2 and 3 (see especially page 20, lines 14-30 and page 21, line 16 – page 22 line 29). Claim 32 is directed to a method of protecting a fish, as discussed, *inter alia*, at page 17 starting at line 28 and in Example 5, especially page 27. In claim 34 a method of protecting fish is recited where plant tissue is transformed with the sequence, and the tissue fed to the fish so that a protective response is observed, as discussed at Example 5. Claim 38 is to the method of protecting fish in which the amino acid is expressed at levels of at least about 0.1% total soluble protein and is fed to the fish, providing protection. Therefore the new claims are supported by the specification and believed to be novel and not obvious.

Appl. No. 10/733,031

Reply to Office Action of February 24, 2006

In light of the foregoing, reconsideration and allowance of the claims is respectfully requested. In the event any questions or concerns remain the Examiner is invited to contact applicant's attorney listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Patricia A. Sweeney", with a long, sweeping horizontal stroke extending to the right.

Patricia A. Sweeney
Reg. No. 32,733

Patricia A. Sweeney
1835 Pleasant St.
West Des Moines, IA 50265-2334
(515)222-0921
(515)267-0556 (fax)